

How to persuade people to engage in preventive health behavior has been a matter of concern to professional health workers. This theoretical analysis is devoted to the role of fear though it is only a part of the picture.

FEAR APPEALS AND PERSUASION: THE DIFFERENTIATION OF A MOTIVATIONAL CONSTRUCT

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THE goal of the present paper is to invite new thoughts about the effects of fear-arousing communications on persuasion. As a consequence, it is unashamedly theoretical and may seem to run counter to the insistent cries for the practical and relevant. But it is my thought that the theories and assumptions we make about other people are an important determinant of what we say when we try to influence or educate them. To do a better job in this role, we must be sure that we are using the most adequate theory in developing our persuasive and educational appeals. The best way to increase the quality of our theories is to develop and compare different ways of thinking about the same problem. Thus, to convince you that nothing is so practical as a good theory, I shall review two sets of ideas that can be used to understand the persuasive effects of fear-arousing health messages, discuss how well these ideas fit empirical data, and then leave you to decide which provides the most creative suggestions for practical action.

The health professional's unique knowledge gives him the special responsibility to inform others of the imminence of health dangers. Because he wants his audience to believe and to act upon his recommendations, he is very likely to

wonder about the most effective way of presenting his information. At this point the practitioner has to consider his options. Should he "hit them hard" and arouse strong fear with graphic descriptions of death and danger, or should he use a mild, unthreatening approach and avoid any mention of the serious hazards that may occur if one fails to execute a protective action? Which technique is most effective? If he has read the early study by Janis and Feshbach (1953) he would find support for a mild approach. This study suggests that increasing the vividness of the threat information on dental disease and thereby raising the level of fear *decreases* the proportion of subjects who follow a program of dental care.

If he reads further, he is likely to notice that nearly all subsequent studies show that communications which stimulate higher levels of fear [on issues such as tetanus (Leventhal, Singer and Jones, 1965; Dabbs and Leventhal, 1966), smoking and lung cancer (Janis and Mann, 1965; Leventhal, Watts and Pagano, 1967)] lead to more acceptance of the communicator's recommendations.² Indeed, he may notice that the number of studies with positive effects, high-fear messages producing more attitude and behavior change than low-fear messages,

is far greater than the number with the opposite effect. He may also note that high-fear messages are much more effective in getting people to *say* they will act than in producing action. Even the powerful emotional experience of playing the role of a lung cancer patient (Janis and Mann, 1965; Mann and Janis, 1968) produces only a 2.5 cigarette per day greater reduction for role-players than for control subjects. The data are not consistent. Perhaps high fear is a better persuader than low fear, but maybe it is superior only for some issues, some populations and some, but not all, recommended actions. It has also been suggested that if we compared many messages which differed in fear level, we would note that at the low end of the scale, where the messages were low or mild, increases in threat level would be associated with increases in persuasion (compliance with recommendations to stop smoking, take tetanus shots, etc.). At the high end of the scale, going from mild to very strong messages, increases in threat level would be associated with decreases in persuasion. The problem seems to be that of selecting the right fear level (see Janis, 1967; Janis and Leventhal, 1968).

Contrasting Theories

The drive paradigm

My discussion of the effects of fear upon persuasion assumed that fear is a drive or a motivator of behavior. The

fear-drive theory is a member of the class of Darwinian models that emphasize that "man is an animal." These models see the human organism as governed by a set of internal needs which activate motivating mechanisms. Once a need is present, behavior must be forthcoming; starve the animal and it must eat. Drives like fear are aroused by external stimulation. Thus, when the normal human animal is confronted by danger, he becomes fearful, and when this happens, he will be motivated to protect himself. When a self-protective act is executed successfully, it will reduce fear. When fear is completely removed there is no longer any push to behave. Fear is a necessary intervening step between the stimulus and the action. Without it, action will not occur (see Figure 1). In the simplistic world of the fear model, our main job is to produce and evaluate fluctuations in fear.

There are many reasons for rejecting the serial or fear-drive position. Two of these reasons are: (1) the available data show that the variables which are supposed to change fear, to turn it on and off, do not have any important effects upon persuasions; (2) concentration on the concept of fear keeps us from asking relevant questions about variables that do effect preparation for danger. Thus, neither the practitioner nor the experimentalist can use the fear model as a reliable guide to influence others.

Before reviewing the available data on facts which influence fear, I would like to examine an alternative model. This

Figure 1—The Drive paradigm: Fear Behavior provides the important cues for starting and stopping of motivated behavior. The action that reduces fear stops motivation. This action may be an appropriate health act or a defensive act.

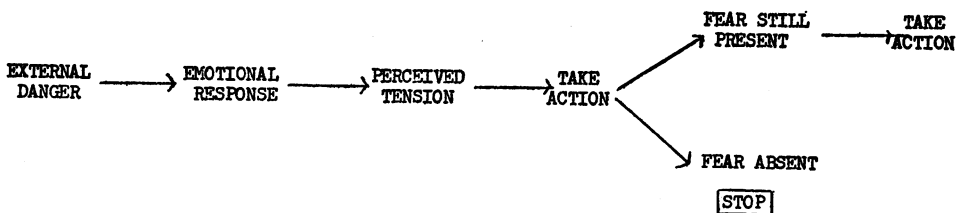
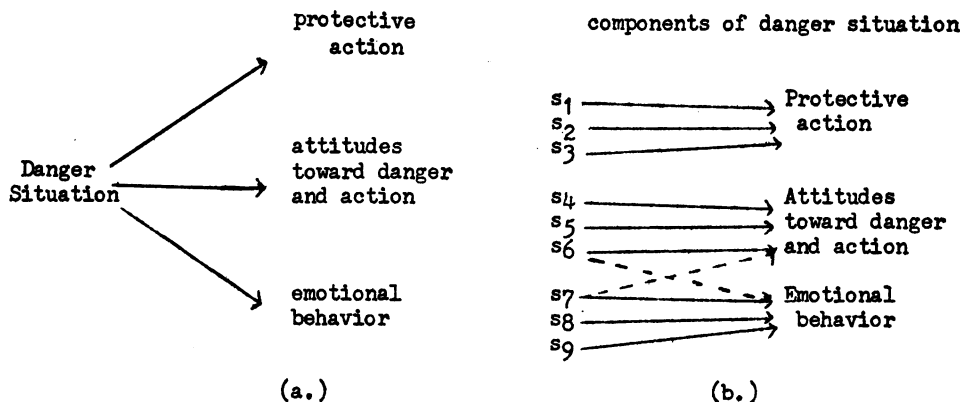


Figure 2—Basic features of Parallel Model. Figure *a* shows that the three basic types of response—action, attitude and emotion—are dependent upon the situation. Fear is *not* a necessary link between Danger and action. Figure *b* illustrates the complexity of the Danger situation and that different aspects of it may effect action, attitude and emotion. There may, of course, be some stimulus elements which effect 2 of these factors.



will give the reader two perspectives from which to view the data.

The parallel response paradigm

The basic assumption of this alternative paradigm is that emotional responses (such as fear) and adaptive responses (such as belief changes and protective health acts) are arranged in a parallel rather than serial relationship. The parallel model is related to a general class of models which are called information processing models. Situational stimuli are sources of information and the interpretation, given these stimuli, leads to a variety of response processes. For example, if a situation is interpreted as dangerous, the interpretation can give rise to coping efforts to minimize the impact of the danger, and it can simultaneously give rise to feelings or emotions of fear. Thus, in a parallel arrangement each of the functional units, fear and coping activity, are activated by the input of situational stimuli (see Figure 2a).

Perhaps we can clarify the difference between serial and parallel arrangements by an analogy to a set of electric lights

that are arranged in serial or parallel order. In series arrangements, common in old Christmas tree lights, each functional unit or light is dependent upon the others. If one burns out, the entire series goes out. If one light has high resistance to the flow of current, all the lights in the series get little current. With a parallel arrangement each light completes its own circuit so that each one responds to the current according to its own characteristics. Thus, if one light goes out the remainder stay active, and if one passes much current and burns brightly, it will not change the light output of the others. They are relatively independent of one another, and all are responding to the same current input. The key point in the analogy is that fear and adaptive activity are like response units, each of which are turned on by the danger situation. Both responses are to the warning message and there is no need to assume that fear arousal is a necessary prior link in the causal sequence that leads to adaptive acts. Part b of Figure 2 shows that the stimulus situation actually consists of a variety of elements. This way of depicting the parallel model not only shows

that the stimulus is responsible for emotional, attitudinal and adaptive actions, but suggests that different aspects of the situation may be more important in eliciting one or another type of response.

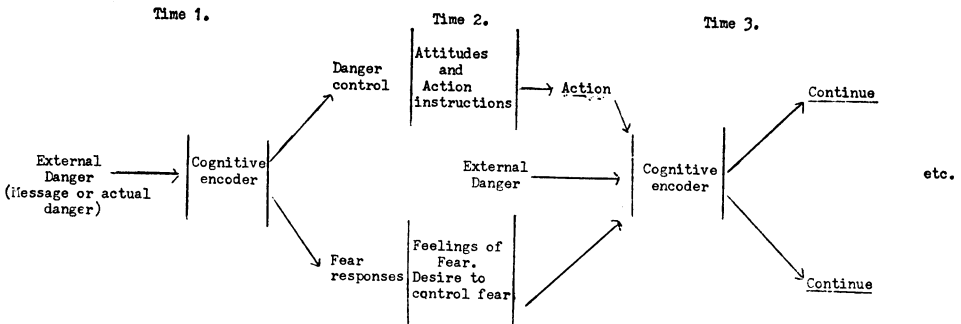
In Figure 3 is added another part to the parallel model, the cognitive encoder. It is placed between the stimulus and the response (emotional and coping) outputs. This illustrates that it is not the external stimulus *per se*, but an encoded or elaborated version of it that leads to behavior. The diagram is also extended from left to right to illustrate that the process of adaptation to danger is extended in time. The elaborated version also suggests that the person perceives and responds to his own behavior. If he acts to control the danger, he can see the effects of his actions upon the environment and he can then respond to the changed situation. If he becomes frightened, he will experience his bodily reactions as well as the external danger. These inner reactions may get stronger or weaker; they too can provide information to guide behavior. Thus, the perceptual-cognitive operator obtains information from three sources: (1) the external danger object, (2) the person's emotional behavior and (3) the person's coping behavior.

Under certain conditions, an individ-

ual will respond to danger; he will think about and act to control the outer world, and ignore or be inattentive to his fear. This type of control process can be called Danger Control (DC). It is problem-solving activity. On the other hand, it is also possible to respond to internal cues generated by one's own emotions and select behaviors whose aim is Fear Control (FC).

Neither Danger Control nor Fear Control are likely to appear in pure form, though one or the other process may dominate under different conditions. For example, decreased clarity of external danger cues should shift control to internal or emotional cues. Secondly, it is likely that different types of coping responses will be used to control fear than to control danger. Responses to control danger are aimed at manipulating the external environment, by changing the danger agent and its ability to strike us. Responses to control fear are concerned with avoiding contact with stimuli which are fear-producing and to engage in reactions, such as eating, sleeping, intense laughter, etc., that will interfere with or disrupt unpleasant emotional responses. Of course, there will be individual differences in the way people respond to their fear, or to danger. Some people may

Figure 3—Danger and fear control processes over time: the danger encoder is added to the parallel model. This refers to processes of identifying danger and evaluating the value of actions at a later time (Time 3). Danger and fear control are the two types of motivational control that may follow the recognition of danger. Aspects of these could be simultaneous, though they will frequently appear in some alternating order.



respond to their own fear by searching for external cues in order to engage in danger-control reactions.

The Empirical Adequacy of the Models

Because past research was developed within the drive framework, it is easier to demonstrate the inadequacies of the drive model than to demonstrate the predictive power of the parallel-response model. Despite this difficulty, we can note that the parallel model is reasonably post-dictive.

The simple version of the emotional-drive model cannot predict whether increased fear would increase or decrease the persuasive impact of a health communication; other factors have to be specified. These factors can be identified by their effects upon fear level. Any factor which reduces fear should reward or strengthen the persuasive impact of the communication. Any recommendation which increases fear and leaves doubt should be ignored. For example: (1) If a person cannot take protective action immediately after a warning message, he must find some other way to reduce his fear—perhaps he will defend himself against fear by denying his vulnerability to danger (Janis and Feshbach, 1953); (2) If a recommended action is not completely effective in eliminating danger, there will be residual fear and once again, this fear may be reduced by denial of vulnerability (Janis, 1967); (3) People who think well of themselves tend to be optimistic and are more likely to deny vulnerability to danger. Thus, they are less likely to be accepting of recommendations with high-fear messages as they will be motivated to maintain a favorable world view and to deny the relevance of the threat (Cohen, 1957; Leventhal and Perloe, 1962); (4) If we make it difficult for a person to think of himself as invulnerable, by having him play the part of someone with cancer (Janis and Mann, 1965), he will find it

more difficult to reduce fear by denial and will more readily accept the recommendation (to stop smoking) made by the communicator. If the above hypotheses are true, persuasion will be increased by high-threat messages when: (1) actions are immediately available, (2) actions are relatively effective, (3) subjects are low in esteem, and (4) we have suppressed the ability to deny personal vulnerability. Each of the hypotheses listed above have important, common features. They all attempt to account for the inconsistencies in the relationship between fear and persuasion. Second, each of the hypotheses is based upon key assumptions of the fear-drive model. All assume that fear motivates both the acceptance and the rejection of the communicator's messages. The distinctive feature of each hypothesis is that it suggests a particular factor that helps channel fear so that it leads to the acceptance of the recommendation.

In the next section I shall review data pertinent to each of those hypotheses. The data suggest that most of the hypotheses are false. The variables specified either have no effect upon attitude and behavior, or, when they do have effects, they are different from those predicted by the fear-drive model. Moreover it is important to note that many of the factors do reduce fear as the drive model says they should. But if a variable changes fear and then has no effect upon attitude and behavior, we can only conclude that fear is to a great degree separate from or in parallel to the evaluative and action processes involved in coping.

Recommendation effectiveness

If tetanus shots are seen as a perfect preventive, then raising fear level about tetanus should facilitate favorable attitudes toward shots (Leventhal, Singer and Jones, 1965; Leventhal, Jones and Trembly, 1966). If dental hygiene programs are seen as an inadequate preven-

tive, then raising fear level on tooth decay should decrease reported compliance to dental hygienic recommendations (Janis and Feshbach, 1953). According to the drive model, differences in recommendation effectiveness should account for the differences in results. To test this assumption, Dabbs and Leventhal (1966) conducted an experiment where tetanus shots were described as virtually a perfect preventive or as the only, though less than perfect, preventive. The subjects receiving each description of the shot were further subdivided; some received a non-threatening talk, others a mild one and others a strong one.

The results showed that both fear and effectiveness of the communication influenced attitudes and intentions. The high-fear message created stronger beliefs in the importance of shots and the need for getting shots. High-fear messages were superior to low-fear messages regardless of the ascribed effectiveness of shots. The description of effectiveness was important, however; more people wanted shots if they thought them perfect. It was also true that more people took shots after exposure to the high-fear message than after exposure to the messages in the less fearful communication conditions.

To reduce the perceived effectiveness of tetanus shots, Dabbs and Leventhal described them as "less than perfect." While this did reduce confidence in the adequacy of shots, perhaps a much bigger reduction in perceived effectiveness is necessary to produce the reversal predicted by drive theory, low-fear messages more persuasive than high. Fortunately, Godwin Chu (1966) conducted a study which did include a very extreme change in the described adequacy of the protective measure. The topic and recommendation concerned a drug to combat parasitic worms. His audience was a population of Taiwanese schoolchildren for whom this issue is relevant. For a third of his subjects the drug was described as extremely

effective (cures 90% of cases), for another third as moderately effective (cures 60% of cases) and for the last third as rather ineffective (cures less than 30% of cases). Fear was also varied over three levels (low, moderate, and high) making nine messages in all. Chu's subjects were quite rational: (1) effective recommendations were accepted more strongly than ineffective recommendations; (2) high-fear messages led to more acceptance than low-fear messages; and (3) there was absolutely *no* tendency for low-fear messages to be more persuasive than high-fear messages at the lowest level of drug effectiveness.

The most reasonable conclusion from the effectiveness studies is the following: when people are faced with danger, they prefer to do something rather than nothing, and they always prefer the most effective means of control regardless of the intensity of their emotions. This conclusion is consistent with the parallel-response model. When a threat is well-defined, people want to control it—Danger Control. The more vivid the threat, the more important it is to do something. But even when fear is high and recommendations poor, they show no signs of denial. The results are consistent with the parallel model.

Immediacy of response

When protective acts are immediately available and there is no time for denial of vulnerability (Janis and Feshbach, 1953), the drive model predicts more acceptance for high- than for low-fear messages. The parallel-response model suggests an opposite outcome. Interference with realistic action should be *greatest* immediately after exposure to threat messages at the time when fear is strongest and the processes of Fear Control are most salient. Under these conditions, Danger Control reactions will be inhibited by fear-controlling avoidance behaviors. The Janis and Feshbach

(1953) study reports that a low-fear message is more persuasive than a high-fear message after a delay. It is the only study that reports such a finding and its result is consistent with the fear-drive model and inconsistent with the parallel model. In all other cases where a low-fear message seems to produce more persuasion than a high-fear message, the effect occurs immediately after the communication. When a delay is introduced between communication and the measurement of action the trend is for high-fear messages to be more persuasive than low. For example, Leventhal and Watts (1966) used low, mild and strong threat messages (on lung cancer) to influence attitudes toward chest x-rays and stopping smoking. Their high-fear movie included close-ups from a lung surgery operation. The three groups were compared for the number of people who took x-rays immediately after the communications; an x-ray booth was available right outside the theater. The results showed that the smokers in the audience did not take x-rays after exposure to the high-threat film; they did take x-rays after the low and moderate threat films. Reports of success in reducing smoking were collected three months later and a greater proportion of subjects exposed to the strong high-fear film claimed success in cutting back.

The low rate of x-ray taking after high-fear can be attributed to the need to control a strong state of fear. But it could also reflect the fact that taking an x-ray leads to danger detection (finding cancer) rather than to protection. Thus, the comparison of x-rays and stopping smoking involves the factor of moving toward danger, as well as the factor of immediacy. Both of these conditions would favor the control of fear emotion by the avoidance of the detection of the danger.

In a second study, Kornzweig (1967) used the *same response*, taking a tetanus shot, for the immediate and de-

layed condition. He told half his subjects that shots were immediately available (downstairs in the same building) and the other half that shots were available on the following day. Information on the availability of shots was presented at the end of a booklet. Different booklets gave strong, mild or no threat information on tetanus. Kornzweig found a tendency for more shots to be taken after high than after low-threat messages, and more shots were taken when they were immediately available. But, there was also a complex interaction of the threat level of the communication, with the self-esteem of the subject and delay. Immediately after the messages, individuals high in self-esteem were much more likely to take tetanus shots if they were exposed to the high-threat message. Low self-esteem subjects, on the other hand, were much more likely to take shots if they were exposed to the no threat or mild threat messages. Although fewer subjects took shots on the following day, high and low self-esteem subjects no longer differed in their response to the fear messages; both groups took more shots if they had been exposed to the high-threat message.

Kornzweig's data also show that high-fear messages do less well than low-fear messages when action is immediate. The generalization is qualified by the fact that the failure to take the shot—an avoidance or Fear Control response—is visible only in subjects with inadequate coping mechanisms, the low self-esteem people who feel overwhelmed by the danger. Results reported by Dabbs and Leventhal (1966) and Leventhal and Trembly (1968) also support this coping hypothesis. In all cases, low self-esteem subjects accept the reality of the threat but do not conform in beliefs or action to the recommendations made to deal with it. When their sense of invulnerability is shattered, low-esteem subjects become passive in the face of danger. Perhaps they are reluctant to act to control danger because acting may bring them

closer to danger cues and increase their fear. The need to avoid or to control fear will be strong when emotional disturbance is strong, immediately after the high-threat message. But, as time passes and emotional disturbance abates, many low-esteem subjects will be able to face the danger and take protective action. High-esteem subjects, on the other hand, seem to focus upon the danger at both early and late points in time. Thus, instead of showing fear motivated avoidance behaviors, they attempt to increase their invulnerability to danger by taking the recommended action.

Invulnerability defenses

Janis and his associates (Janis, 1967; Janis and Mann, 1965) state that it is important to break through the "facade of defensive denial" and suggest that one can do this by making the subject believe that he is personally vulnerable to danger. They attempt to arouse fear and break through defenses by having the subject play the role of a person with lung cancer. In two reports of an initial study (Janis and Mann, 1965; Mann and Janis, 1968), the claim is made that emotional role-playing has a startling impact on smoking behavior. But a careful examination of their data shows that the final differences between their role-play and their control groups is extremely small (2.5 cigarettes per day) and more appropriate probability tests would probably not yield statistical significance. More to the point, however, is the fact that later studies (Mann, 1967) have failed to replicate this finding. An extremely interesting result is reported by Mausner and his associates (Mausner and Platt, 1970). Four groups of subjects were used in their study: (1) the subject role-played the part of a patient; (2) he played the doctor informing the patient of the dangers of smoking; (3) the smoker observed the role-playing sessions; and (4) control

subjects were unexposed to any information on smoking and cancer. The results showed essentially no reduction in smoking for the control subjects or for the subjects who played the part of the patient. But subjects acting as observers or playing the part of the doctor showed significant reductions in smoking. Thus, the subjects who were frightened when their invulnerability defenses were disrupted (the patients) did not respond to the anti-smoking communication.

There is much experimental data suggesting that increasing vulnerability while stimulating fear *reduces* acceptance of protective recommendations. For example, subjects who do feel vulnerable to cancer are less likely to stop smoking when exposed to high-fear messages (Niles, 1964). They seem convinced that they will get cancer no matter what they do. Leventhal and Niles (1964) found that fewer smokers (vulnerable subjects) took x-rays after high-fear messages. Brock and Balloun (1967) also find that smokers are resistant to information on vulnerability and Berkowitz and Cottingham (1960) found that occasional and not regular drivers were most persuaded by high-fear messages. Further, national survey data reported by Daniel Horn show that high personalization of the cancer threat is associated with a failure to reduce smoking over the long term.

In an experimental study on lung cancer, Jean Watts (1966) exposed three groups of smokers to motion pictures and used a fourth unexposed control group. One group saw a fear message (surgery for cancer), another a vulnerability message, and the third group received both the vulnerability and fear messages. All subjects were given instructions on how to stop smoking. Subjects seeing the vulnerability movie only, and subjects seeing the fear movie only, significantly reduced their smoking. Control subjects and subjects seeing both the vulnerability and the fear movie did not. As in the Mausner role-playing study, combining

strong images of a danger with explicit indications of vulnerability, arouses fear and undermines the person's ability to conceive of himself as coping with and controlling the danger. The condition favors avoidance and Fear Control rather than confronting and manipulating the external danger. All of these studies suggest that the subject thinks the danger terrible, but feels hopeless about controlling it.

Reducing drive

In one of our studies, Leventhal and Singer (1966), we attempted to test the hypothesis that persuasion would be increased when the communication reduced the subject's fear. The hypothesis is a direct prediction from the emotional-drive theory. The fear produces motivation and a desire to take protective actions. By making sure that the fear is eliminated by the presentation of our recommendations, we should prevent the appearance of defensive denial. The experiment used high- and low-fear messages describing the dangers of dental neglect. One high- and one low-fear group did not hear protective recommendations. This made it unlikely that they would reduce their fear by thinking about hygienic practices. Three other pairs of high- and low-fear groups heard detailed recommendations on dental hygiene. One pair received the recommendations before the fear material, another pair received the recommendations interspersed with the fear material and the third pair received the recommendations after the fear material. Recommendations given before fear is aroused seem less likely to reduce fear than recommendations that come along with the threatening information. Listening to the recommendations and thinking about them after fear is aroused should be most fear-reducing. The results were clear: First, all of the groups receiving high-fear messages were more persuaded of the importance of the hygienic practices than were

the groups receiving the low-fear messages. Second, the positioning of the hygienic practices affected fear reduction; when the recommendations were last, subjects were least fearful. All of the groups were in the appropriate order. But subjects were *not* more persuaded if their fear was reduced! The drive-model prediction is wrong. Instead, the recommendations are somewhat more strongly accepted when they are presented in an organized group, either before or after the fear message. This happens regardless of the fear-level of the message (high or low). Thus the clarity of the information, presenting the practices in an uninterrupted unit, is what increases persuasion.

We should also note that the topic in the Leventhal-Singer study (1966) was dental hygiene, and the fear messages were nearly identical to those used by Janis and Feshbach; the results, however, were opposite. Two additional studies with high school students, one by Robert Haefner (1965) the other by Robert Singer (1965), also found high-fear messages more effective than low-fear messages and contradict the Janis and Feshbach results. Both used actual records of behavior, in addition to questionnaires. Their results also showed that increasing the amount of fear information added little to the message's persuasive power for students in college preparatory programs. But students in non-college programs showed more belief change as the communication became more threatening.

The new dental studies point to an informational interpretation of persuasion. The Leventhal-Singer study suggested that fear reduction is irrelevant but that clarity of information is relevant: knowledge, not feeling, affects belief. The Haefner and Singer studies gave further support to the informational interpretation of the persuasion effects. They found that students in the academic program of a high school were equally responsive to high- and low-fear messages. These students usually score higher in tests of in-

telligence and achievement. They also have a socialization history where parents use explanations rather than punishments and threat (Aronfreed, 1961). These students can be expected, therefore, to respond to information. The non-academically oriented child, on the other hand, is more responsive to threat. Thus, individual difference factors modify the degree to which the fear communication persuades through informational channels (Danger Control) or through fear (Fear Control).

Specific Action Instructions

Early in our research program, I gave some attention to creating conditions which could maximize a *communications* impact upon behavior. On the basis of a personal hunch, I formulated the idea of "specific action instructions." This is information which encourages the audience to rehearse various aspects of the recommended action. One purpose of the rehearsal is to commit the person to the decision to act. Another, and I think the key aspect, is to help the subject attend to the series of cues and specific acts that are needed to complete the action sequence.

We first studied specific instructions in an investigation of tetanus inoculations. Four experimental and two control conditions were used. The experimental conditions consisted of two high-fear groups and two low-fear groups. After the fear material was presented, all subjects were told to get a shot at the student health service. One high- and one low-fear group was also given specific action instructions. The instructions consisted of a map of the campus with the student health service circled. Examples were given of routes that could be taken to pass the health service as one changed classes. The student was asked to think over his daily schedule and to plan at least one class change so that he would walk by the health service. None of this

information about routes was novel as the students were seniors. The idea was to insert the health act into the ongoing schedule of activities.

The data showed that after high-fear messages, subjects were more frightened, thought shots more important and expressed stronger intentions to be inoculated. But there were no differences between low- and high-fear messages for actual shot taking. The drive model led us to expect that action instructions would interact with fear level. By making action seem easier, they would reduce fear and encourage more subjects to get shots after high-fear messages. Action instructions, however, had no effect upon fear and no effect upon attitudes, but they did effect action. Roughly 30% of the subjects took shots if they had received *either* a low- or a high-fear message *and* the action instructions *versus* 3% in the fear groups without action instructions. The level of fear did not matter, though some level of motivation was necessary. No subject took shots from a control group that was given only action instructions, nor did any subject take shots in a control group that was not exposed to tetanus information.

The above findings, and a replication by Leventhal, Jones and Tremblay (1966), suggest that the action component is separate not only from the emotional response but from the attitudinal response. It seems to require special information to link attitudes to action and the process of tying the two together is not affected by fear intensity. The result is clearly out of step with the emotional-drive position, but quite consistent with the emphasis the parallel-response model places on the independence of different behaviors.

A study on smoking behavior by Leventhal, Watts and Pagano (1967) revealed the long-term importance of action instructions. The experimental design was similar to that of the tetanus

study; two high-fear conditions, one with specific instructions, one without, and a similar pair of low-fear conditions. A control group that received only the specific instructions was also included. The fear material was based on our standard surgery film. The action instructions were designed to help the student identify specific stimuli which elicited buying and smoking of cigarettes and to substitute new acts for each of these cues; e.g. buying a magazine instead of cigarettes, having an excuse for rejecting a cigarette offered at a party, etc.

The results showed that high-fear messages produced stronger desires to quit smoking, and that specific instructions had no effect upon attitudes or desire to quit. Smoking behavior was followed for three months. One week after the communications, all groups, except the control, showed significant reductions in smoking. Thus, all of the fear messages, high and low and with or without specific instructions, inhibited smoking behavior for the first week of the follow-up. But as time passed many subjects returned to their pre-communication smoking levels. The great majority of these were the subjects who had been exposed to either high- or low-fear communications *without* specific action instructions. Those subjects who cut down smoking after a fear message with specific instructions maintained their reduced smoking levels for a three month period. Thus, the effect of the action instructions is visible only after a relatively prolonged period of time.

The idea of action instructions is not new; Dorwin Cartwright (1949) talked about the role of information in developing behavior structures in addition to motivational structures. But much more work is needed to understand this process of linking attitudes to action.

Theory and Practice

A theory or model is a conceptual device that is useful for understanding,

predicting and influencing events. Theory, whether it is explicit or implicit, is the basis of practice. It guides us in what we say and what we do when we try to influence people. In the experiments I've reported, the independent variables of fear, specific instructions, etc. represent actions taken by the experimenter to influence his subjects. These actions were dictated by his theory. But how useful are the experimental results in guiding the action of the practitioner?

It is not simple to move from experimental findings into action programs. One might assume that the experiment is representative of reality; that its communications, subjects, atmosphere, results, etc. are on a small scale, but basically the same as the world of the practitioner. If we accepted this idea, programs could be developed by simply borrowing the procedures used in the experiment. But the atmosphere of the experimental situation and the control it provides make it different from more typical communication settings (see Hovland, 1954). The very fact that it is an experiment makes it different. Thus, we cannot generalize directly from the experiment to the field setting. The experiment is designed to have high internal validity; it compares conditions that differ on specifiable factors. This is necessary to test an hypothesis that is derived from a theory or model. But the experiment is seldom representative of external reality. The value of the experiment is that it serves to increase or to decrease our belief in the adequacy of the theoretical model and to add new concepts or components to the model. The model, however, is far more complete than the experiment and takes into account a greater range of variables. Thus, it is the model that is the bridge from the experiment to the field setting. It is used by the practitioner to analyze the relevant features of reality, to appraise the characteristics of his sample, and then to generate his communications. Once he

develops his program he may conduct a field trial, and if it shows that his communications change behavior, he can feel confidence in the model he selected and be satisfied with his skill in applying it.

In summary, the practitioners test of a model involves two steps: (1) using the model to generate a communication program and (2) testing the effectiveness of the program in changing behavior. In the remainder of this paper, I will touch briefly upon some of the issues involved in using the drive and parallel models to generate health programs. I will say nothing about program evaluation as the topic is covered in many other sources (e.g., Campbell and Stanley, 1963).

The drive model

According to the drive model, the arousal of fear is the source of motivation to cope with danger. Fear motivation can lead one to adapt or to deny ones vulnerability to threat. Thus, fear is a necessary antecedent to action and we must be sure that our health program stimulates at least some level of this emotion (see Janis, 1967). How do we stimulate fear? The model tells us little or nothing about that. Should we surprise our audience with a frightening explosion and then recommend that they brush their teeth? Common sense may lead us to suspect that scaring someone for no relevant reason may make him angry and resistant to our appeals. But the drive model gives no clear prescriptions nor any abstract rationale to guide us in these choices. This is illustrated by the contradictory statements that two different investigators have advanced from the fear-drive model, Janis (1967) suggests that realistic or relevant fear, fear produced by the danger object, facilitates persuasion while Sigall and Helmreich (1969) suggest that irrelevant fear facilitate persuasion and that relevant fear produces defense.

The fear-drive model does point to a

number of variables that will influence when and how we stimulate fear. For example, we should not arouse fear under conditions where our recommendation cannot be fear reducing. If we make fear too strong so that it is not reduced by our protective messages, if we permit a delay so that fear is reduced by denial, or if we present ineffective recommendations, fear will lead to denial of vulnerability and failure to accept recommendations. But we have already reviewed these hypotheses and I have tried to show that they are disconfirmed by the empirical evidence. At best, the variables elaborated by the fear model are irrelevant to fear arousal and have effects that are completely independent of the threat level of the communication. At worst, the variables produce results that are opposite to the model's expectations. I think it reasonable to conclude, therefore, that the fear-drive model is inadequate to bridge the world of the experiment with the world of practice. The focus upon fear level provides an inaccurate and overly limited conceptual base for the construction of complex communication programs.

Parallel-response model

The parallel-response model is concerned with a person's attention to different sources of information. When I warn someone of danger or directly expose him to it, he is confronted with information from the outer world, and with information from his emotional behavior and his coping reactions. The interpretation of the external situation, and the appraisal of it as threatening (see Lazarus, 1966), is a precursor of fear arousal and of the initiation of coping reactions. But the taking of action seems to depend upon a second process of evaluation that is concerned with the selection and planning of a response program; Lazarus (1966) calls this a process of secondary appraisal. This selection and planning

process is influenced by informational factors which are largely independent of the informational variables that effect the perception of threat and the arousal of fear. What does the model suggest about the construction of a health program?

Danger appraisal

To initiate Danger Control activity a person must be convinced that a threat exists, that it is serious and that it is relevant to him. Our experiments have shown, however, that we *risk* arousing various forms of *resistance* to influence if we present communications that combine vivid information on a threat with clear information on one's vulnerability to it. This combination appears to stimulate loss of hope and feelings of resignation and inability to cope with danger.

But our parallel model suggests that we may be able to differentiate between information that gives rise to fear and information that is needed for the appraisal of danger. If so, we should be able to maximize Danger Control and eliminate the avoidance behavior and hopelessness that seems part of the process of Fear Control. For example, strong negative emotions (including disgust, depression and fear), are likely to be stimulated by vivid scenes of the consequences of threats, i.e. pictures of mutilated accident victims, or lung surgery operations (Leventhal and Trembly, 1968). Moreover, these scenes of the consequences of danger provide relatively little information about the threat agent, the cause of danger. Indeed, fear messages often omit information on how the danger agent operates; information which convinces the observer that the agent is present, that it can attack individuals like himself, and that when it does he will find that only some acts can avert serious damage.

Of course, if people think that a particular danger is harmless, if they believe

that they can easily resist or recover from lung cancer, TB, diabetes, tetanus, etc., it may be necessary to illustrate the consequences of these illnesses when they are uninterested. This might be done without arousing strong fear if simple verbal statements are adequate to convince people of the seriousness of the danger. But it may be necessary to use pictorial and other more vivid material to convincingly elaborate upon the consequences. In this event, the communication will stimulate strong fear and we will again risk various forms of fear-controlling avoidance behaviors. Fear control seems especially likely if we also make the message recipient feel personally vulnerable. How can we eliminate the negative effects of fear?

A first suggestion would be to avoid any direct mention of personal vulnerability while convincing the individual of the severity of the danger. Once he is convinced of its harmfulness and has a negative attitude toward the threat, we can approach the problem of personal relevance. But the best approach to personal relevance would probably be to imply relevance without explicitly stating it. This could be done by concentrating on how the audience can avoid the threat. A second way of handling fear would be to prepare for it. For example, we might warn people that most, if not all, viewers are frightened by the message and that it makes them want to avoid facing the issue. Such preparation might actually reduce or inhibit fear. Even if it doesn't reduce fear, it will provide an explanation and justification for being fearful. "If a message frightens everyone who views it, then I needn't be frightened by my own fear." Fear itself can threaten and alarm us, as it may suggest that we are inadequate to cope with danger. Many experiments show how providing an explanation of a warning for fear serves as a cushion or protective cover and actually reduces the tendency to flee blindly from the danger setting (examples

include studies by Davison and Valins, 1969; Nomikos, *et al.*, 1968; Nisbett and Schachter, 1966).

In fact, most any approach that provides clear expectations about one's emotionality, the danger itself, and how to cope with danger, is likely to decrease the occurrence of fear and facilitate a task-oriented approach in which the subject focuses upon the danger and its control. When we attend to a danger and obtain adequate information about it, it is easier to maintain a realistic perspective and to avoid endowing the threat with supernatural properties. Moreover, clear expectations about a danger will encourage searching and experimenting with techniques for controlling it.

Attitudes to action

Convincing our audience of the seriousness of a danger, and giving them information respecting their personal relevance provides the first part of a set of cognitive mediators needed for action. But if people are to act, they must have a clear idea of the action alternatives that are available to them, and detailed action instructions to help bridge the gap between their attitudes and the actual performance of the behavior. Action instructions direct the individual to specific environment cues and prepare him to respond to these cues. I am much more likely to take a tetanus shot if I arrange my lunch appointment so that I pass my doctor's office than if I have to make a special trip for my inoculation.

Designing action instructions can be a formidable task. Differences in individual life situations and the complexity of some health practices (e.g. dieting) may prohibit presenting such instructions in a mass communication. One should not assume, however, that it is necessary to tailor programs to each individual until one has explored the life situation of a sample of individuals drawn at random from the target population. These inter-

views could reveal common features of peoples' life space and suggest typical ways as to how, when and where a health action could be completed. But, even if it proves impossible to fit action instructions to any group of people, it might be possible to provide people with clues to help them generate their own action instructions. For example, we could suggest that smokers keep a record of their daily smoking behavior and of the details of the situations in which smoking occurs. This could help the smoker classify the various situations which seem to control his smoking behavior. He could then develop plans for dealing with each of these types of situations. The communications could also provide examples as to how people went about controlling their behavior in each of these situations and the smoker could then improvise and elaborate a program that fits his own special needs.

There are times when we persuade people of the importance of a danger, only to find them taking actions other than those which are recommended. Individuals build up relatively complex habits of self-diagnosis and self-treatment. These behavioral patterns are well-learned and well-practiced and they may be barriers to more meaningful and effective actions. A mother may decide that the best protection against polio is staying away from beaches in hot weather, not the taking of polio shots. Effective self-generated acts provide useful alternatives to the communicator's recommendations. When these acts are inadequate they can interfere with prevention. The practitioner will have to determine, therefore, the types of self-suggested actions that are available to his audience and develop communications to point out the inadequacy of those measures which are ineffective.

Finally, a person's own actions reinforce or undercut his ability to carry through a health program. For example, people often expect the initial steps of

dieting or smoking withdrawal to be simpler than later ones. This could be unfortunate as the early success would then be unlikely to increase confidence in one's ability to execute the total program. But, if a smoker believes that it is especially difficult to take the first step, to decline a proffered cigarette, his refusal can increase his belief that he can control his habit. The *actual* difficulty of various steps may matter less than their *perceived* difficulty. The important point is that a person will attribute skill or will power to himself if he believes he has mastered a difficult act (Bem, 1967). Communicators could judiciously encourage this process by a carefully designed action program.

Summary

I have covered a wide range of theoretical and empirical issues. First, I have tried to convince the reader that theory is of critical importance for practice; it is the tool for the analysis of the practice situation. Second, I have tried to show that experiments are critical for evaluating theory; they show whether the theory can survive a comparison to data. It is clearly to one's advantage to approach the analysis of the practice setting with a conceptual tool that has met this test, rather than with one which has failed. In making the above arguments I presented two particular theoretical approaches to the problem of fear in health communications. The first was the traditional drive model; a theoretical model that assumes that the emotion of fear and fear reduction provides the motivation for the acceptance and the rejection of persuasive messages. Experiments to test the theory concentrated upon fear level and whether the variables that served to reduce or eliminate fear increased the persuasive impact of health messages. The practice implications of the theory, whether in mass communications (Janis, 1967; Leventhal, 1965) or in the re-

sponse of surgical patients to stress of surgery (Janis, 1967), is upon the observation and manipulation of fear level. The goal is to provoke sufficient fear to motivate acceptance while preventing defensive denial or other neurotic fear responses. As pointed out in the review of the empirical literature, the findings of a lengthy series of studies give little support to the idea that the level of emotional motivation and its reduction is responsible for the acceptance of preventive health practices. The model does not seem to fit the data.

Finally, I presented a second theoretical model which I have called the parallel response model. This particular model shares many properties with so called information processing models. Its points are fairly simple; when a person receives a warning communication or confronts a danger situation, his appraisal of the threat gives rise to two relatively independent processes: Danger Control and Fear Control. Some features of these two processes may appear simultaneously; a person may be coping with danger at the very same time that he is frightened. At other times these processes may appear sequentially; a person may not become frightened until *after* he successfully copes with a danger. I have emphasized that controlling danger is largely a cognitive process and that it seems to have two separable components: 1) a clearly perceived danger agent which one wishes to avoid; 2) an awareness of alternative ways of coping with the agent and a program of action instructions to actually undertake danger control behavior.

The second process I have labeled Fear Control; it refers to the fact that the recognition of danger can give rise to strong emotional behaviors and to the subjective awareness of unpleasant emotion. When emotional cues dominate experience, the individual will be motivated to minimize or control fear.

It is important to emphasize that both of these processes are a consequence of

the appraisal of danger; they are a function of that perception rather than causally linked to one another. Since both forms of behavior may appear at the same time or in different patterns over time, I have attempted to specify some of the factors which will determine which of the two processes will be dominant. For example, fear control will be encouraged by: 1) ambiguity of the danger agent, 2) information on consequences of the threat which stimulates fear but gives little information about the agent, 3) inability to devise an action program, so that one is helpless and unable to manipulate the danger, etc. Each of these conditions can be brought about by features of the communication, long-standing characteristics of the personality such as self-esteem, and the timing of the occasion for action.

The alternation between fear and danger control and the assembling of the various attitudes and action instructions needed for danger control, occur over time. Deciding to stop smoking and stopping, deciding to get a tetanus inoculation and doing so, etc., do not usually occur at one point in time. Therefore, at any given time, different people will be at different places in respect to their commitment to and execution of a preventive health program. The health practitioner must be sensitive to the different informational needs related to these inter- and intra-individual differences. There is information for convincing people of danger, information on the relevance of danger, information on controlling danger, information on constructing action programs and information to help prevent the arousal of strong avoidance motives. The practitioner must direct himself to all of these tasks, as each is relevant to the continuing process of protective action.

Despite the complexity of the problem, I think it is clear that I have only touched upon one aspect of persuasion

for preventive health behavior. Social, economic, and a variety of other personal goals can serve as a basis for health action. Fear and Danger are only a part of the picture. Though my focus has been narrow, it is my hope that the parallel model will raise new questions, encourage new experiments and eventually help us to communicate more effectively with others as to how they can go about solving their health problems.

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A detailed review of this literature will soon be available (Leventhal, H., *Findings and Theory in the Study of Fear Communications*. In L. Berkowitz, (Ed.), *Advances in Experimental Social Psychology*. Vol. 5. New York: Academic Press, in press.

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